

**Minutes for Rule 21 Working Group Meeting #64**  
**February 24, 2005**  
**Pacific Gas & Electric**  
**Oakland, CA**

There were 23 Working Group members and 3 guests in attendance in person or conferenced in by telephone. The next regular meeting of the Working Group is scheduled for March 29, at Southern California Edison's facilities in Fontana, CA.

Scott Tomashefsky, Chair

Aldridge	Pat	SCE	Moran	Nick	PG&E
Allured	Charles	Ergy & Pwr Solution	Panora	Bob	Tecogen
Blumer	Werner	CPUC/ED	Parks	Ken	SDG&E
Brown	David	SMUD	Robinson	Mark	Nextek
Couts	George	SCE	Savidge	Dylan	PG&E
Goh	Jeff	PG&E	Simpson	Joe	Joe Simpson
Grebel	Ed	SCE	Smith	Richard	SDG&E
Gutschow	Wayne	Nextek	Solt	Chuck	Lindh & Assoc
Hoffman	Ron	CEC	Tolentino	Brandon	PG&E
Iammarino	Mike	SDG&E	Tunncliff	Dan	SCE
Jackson	Jerry	PG&E	Vaziri	Mohammad	PG&E
Lacy	Scott	SCE	Whitaker	Chuck	BEW Engrg
McAuley	Art	PG&E			

### **Combined Process and Technical Group**

#### **Meeting Frequency**

The group discussed the possibility of increasing the amount of time between working group meetings. One possibility suggested was to increase the meeting times from 4-6 weeks between meeting to 8-12 weeks between meetings. The group decided there was value in continuing meetings at the current 4-6 week interval. This issue will be periodically revisited in future meetings.

#### **Upcoming Integrated Energy Policy Report Meetings**

- CHP Market Assessment – April 28
- Distribution System Planning – April 29

#### **Rule 21 Web Page**

It was suggested that meeting documents be posted on a Rule 21 web site rather than emailing to all parties on the WG membership list. Chuck Solt will follow up and hopes to have it in effect by the next meeting. All WG members would receive a reminder that documents are available for the next meeting. The site will have a folder for each meeting in the last year with the documents related to

that meeting as well as a folder for the next meeting. This will allow members to download only the documents in which they have interest.

### **Rule 21 Revisions Advice Letter Progress and Status**

The CPUC has formally approved SCE and SDG&E advice letters that will more closely incorporate IEEE 1547 provisions throughout the Rule 21 tariffs. PG&E expects to file its version of the tariff update before the next meeting.

### **Rule 21 Application Forms**

Consistent with working group discussions several months ago, the IOUs will now prepare advice letters seeking approval to revise certain elements of the current Interconnection Application form. The contents of the Application Form were developed by the Working Group in the first half of 2004 with changes sequenced to occur after the Rule 21 tariff changes were adopted. SDG&E filed Advice Letter [1656-E](#) which has been approved by the PUC. SCE expects to file an advice letter within the next week or so, while PG&E will file after it files the revised Rule 21.

### **CEC DG OII (04-Distgen-01) Action item review**

The Energy Commission approved the committee recommendation at the board meeting on February 2. The recommendations will now be sent to the CPUC for further consideration in CPUC docket R.04-03-017

### **CRS Quarterly Data Reports (Per CPUC Resolution E-3831)**

Based on past discussions between Scott Tomashefsky and Valerie Beck of the CPUC, it appears that the requirement for the quarterly reports will be eliminated via an upcoming Executive Director's order.

### **IEEE 1547 Interconnection Standard Activity**

The IEEE 1547 Committee has completed the Testing Standard, 1547.1. The first round of balloting is complete with 85% of votes approving the standard (71 approve, 13 negative, 7 abstain), well in excess of the 75% needed for approval. Negative ballot comments have been addressed, as required by IEEE voting rules, and some changes have been made. The revised document has been sent for a recirculation ballot. In the recirculation ballot, voters have the opportunity to change their vote based solely on any technical changes to the document. It is expected that the document will be ready for Approval at the June 2005 Standards Board meeting. The impact of the new standard on Rule 21 will primarily be to Section J. Such changes should, for the most part be fairly non-controversial, for example, changing the current UL test references to IEEE references. UL 1741 will then be revised to reflect 1547.1. The remaining sections to IEEE 1547 will include 1547.2 – an Application Guide, 1547.3 – Communication Standard, 1547.4 – Islanding Standard (Intentional Islanding), 1547.5 – For systems greater than 10 MW and 1547.6 – Network Standards.

### **FERC DG Rulemaking**

A coalition of interested parties continues working on FERC [RM02-12-000](#) on Small generation (less than 20 MW). Comments have been filed by the Small Generation Coalition.

### **Rule 21 Certifications**

There is nothing new on the Capstone certification effort.

## **Action Item Review**

**C101** A revised Screen 2 was distributed by the technical group in December with a request that utilities review its language and spot compare results using the existing Rule 21 language with results that would have been obtained had the new language been in place. A survey will be forwarded to the utilities this spring to provide some feedback on the new language. It has also been addressed in the Bin List markup of the Rule.

**C105** There was a brief discussion of tracking DG installations as well as cost tracking related to C142 and other reporting requirements. SCE has developed a response to a PUC request listing all DG reporting requirements. Dan Tunnicliff will provide the response to the group for consideration at the March 29 meeting. The reporting requirements will be part of a workshop.

## **PV Systems Without Inverters**

At the last meeting, Jerry Jackson raised this as a possible new action item. Jeff Goh presented a one-page write-up for the group's consideration. Mark Robinson of Nextek gave a presentation on the system they offer. The group concluded that this type of system does not require an interconnection agreement. There are questions about tariffs for these systems, but not interconnection as the systems are essentially loads to the utility. The WG will take no further action on this item.

## **Automated Metering Strategies**

Ron Hoffman, PIER Demand Response Program Advisor under contract with the Energy Commission presented a one-page write-up and gave a slide presentation on work his group is doing with respect to Automated Metering Strategies. Ron believes that some of this work may have some importance to the Rule 21 effort as the group continues its work on addressing revenue metering requirements.

## **People Notes**

- Ed Grebel (SCE) is retiring on March 1. We wish him well and recognize the fact that the first Rule 21 Working Group meeting he attended was on July 10, 2001. That was Working Group Meeting 22.

## **Process Breakout Group Notes**

### **Action Items**

- P131 - It is anticipated that all 3 IOUs will need to sign Continuous Sales Agreements as they purchase capacity to comply with the RPS. Jerry Jackson indicated that PG&E is not yet in a position to provide a written document on this subject. SDG&E has already developed a format and signed some contracts under Advice Letters. Mike Iammarino will provide his template for discussion at the March 29 meeting.
- P 127 – Werner Blumer has completed a markup of the Model Rule incorporating all Bin List items. The “master markup” document will serve as the starting point for further rule language modifications. .
- P 109 – In CPUC Decision 03-02-068, the Commission ordered that “PG&E, SDG&E, and SCE shall include an insert in customer’s bills every year discussing distributed generation

options, available incentives and rebates, and other sources of information on distributed generation. The bill insert will be developed by this Commission and the California Energy Commission (CEC) after consultation with the parties.” During the meeting, Scott Tomashefsky suggested that information related to DG technologies as well as information about the Self-Generation Incentive and Renewable Buydown programs be put in a bill insert. SCE’s Dan Tunnicliff indicated SCE would put some materials together as a first cut for further consideration by the WG.

- P 116 – The group had significant discussion about how the utilities treat net metered systems in apartment settings. The group focused on the billing arrangements between the landlord and the tenants, as well who actually owns the physical equipment. No action was taken as the working group continues to wait for additional input from PG&E.
- P106 – PG&E continues its internal debate on addressing disputes once the interconnection is complete. The utility expects to submit a 1-pager addressing the issue by the May 2005 working group meeting.
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## **Technical Breakout Group Notes**

### **Action Items**

- *T134 – Network Interconnection*

Task 1 Basic Info - Discussed the DUIT report and January Network Issues meeting in New York. Discussed MDGC activities and info available on their web site.

Task 2 Networks in CA – Dave Brown had developed a page describing the networks in SMUD for others to use. Some changes and additional information were suggested. Other utilities will develop similar lists and forward to Dave for compilation.

Task 6 Existing DG on Networks - Discussed MDGC list of DG on networks (not all systems have been verified). We should complete the list with all known systems in CA.

Task 7 Issues – Briefly discussed list in DUIT report and MDGC annual report Chapter 2.

***Hope to have updates/inputs on all sections 1 week prior to next meeting.***

- *T113 – Redundancy/Single Point of Failure.* Asked Chuck Sorter and Bob Panora to work together on a description of current design and manufacturing practices that address the single point of failure concerns. Moh Vaziri and Scott Lacy will provide discussion of utility perspective(s) on this issue.
- *T136 – Line Section Definition.* There is some confusion on the status of this task. Participants concurred that agreements was reached at a previous meeting to change the wording in Supplemental Review Guideline so that it would allow in certain cases the use of a distribution transformer fuse to designate the terminus of a line section. While this action had not explicitly taken place (the wording developed last summer was not revised prior to it’s recent posting), Moh Vaziri was asked to review the wording in the Guideline currently posted on the Energy Commission web site to see if it meets that intent. Secondly, he was asked to provide language as to when the transformer fuse should be used to designate a line section.

The primary concern is voltage rise on a shared transformer secondary due to exporting DG. Dave Smith brought and presented several figures showing data from a transformer with 12 customers, all of whom have net metered PV systems, all capable of exporting power. Though a plot of power measured at the transformer secondary showed regular net export to the distribution primary, the voltage showed no correlation to load level or direction. All measurements were made at the transformer; new measurements are being made at a customer's location to see the local impact on voltage—Dave thinks the results won't be significantly different.

PG&E noted that they had a growing list of situations where a single relatively large residential E-NET customer (i.e., 10kW or so) was causing the voltage at neighboring customers sharing the same transformer secondary to exceed 126V, the allowable upper limit in ANSI C84.1 and Rule 2. These systems tend to belong to affluent customers in more rural areas served by relatively old distribution lines. They are building large homes and creating excessive loads on the distribution secondaries. By raising the voltage at the transformer primary the utility can meet the minimum voltage requirements at the end of these lines under normal voltage profile conditions: power flows from transformer to customer load therefore voltage drops from transformer to customer load. However, when power flows in the reverse direction (i.e., when the ENET customer is exporting) there is a voltage rise between the ENET customer and either the transformer or the point where the aggregate load exceeds the ENET export. The apparent difference between the PG&E case and the SMUD data is relative impedance of the circuits between the exporting DR and the distribution transformer. In the SMUD case, the line impedance is low enough (the distribution secondary wiring large enough) to ensure insignificant voltage rise due to exporting DR. The relatively high line impedance in the PG&E case, is leading to both the need for a high transformer primary voltage and the apparently significant voltage rise to the E-NET and neighboring customers.

The issues discussed at some length included

- The conditions under which this situation can occur.
- What is the best way of screening for this problem:
  - applying the 15% line section screen to the distribution line on the secondary side of a distribution transformer when that secondary is shared by the DR applicant and at least one other customer (unclear how this would be applied to transformers without fuses)
  - Developing a Supplemental Review screen for DR applications that fail the export screen. (e.g., if the DR is on a shared secondary and the aggregate export is less than 20 or 30% of the secondary peak load, the DR can be processed under simplified interconnection.
- Should this screen be applied to non-exporting DR, i.e., the load reduction enabled by running a non-exporting DR will also cause a voltage rise proportional to the difference in load current and the line impedance.
- We need to further document the issues and better define how to screen for the condition.